

What is claimed is:

1. A method for the contained transfer of particulates, said method comprising the steps of:

(a) attaching a first of a plurality of empty transfer containers to a process container in a particulate contained manner;

(b) discharging the contents of the process container into the first transfer container so as to provide a charged first transfer container;

(c) sealing the charged first transfer container;

(d) removing the charged first transfer container in a particulate contained manner; and

(e) repeating steps (a) through (d) in a particulate contained manner.

2. A method for the contained transfer of particulates, said method comprising the steps of:

(a) attaching a charging sleeve of a first of a plurality of empty transfer containers to a first of a corresponding plurality of attaching points of a canister so as to provide a canister assembly;

(b) installing the assembly on a discharge flange of a process container;

(c) introducing an inert gas to fill the empty first transfer container;

(d) opening a discharge valve on the process container, allowing particulate to flow into the first transfer container so as to provide a charged first transfer container;

(e) closing the first charging sleeve so as to provide a charging sleeve first section and a charging sleeve second section;

11 (f) separating the charging sleeve first section from the charging sleeve second section so as  
12 to provide a charging sleeve film stub on the bottom of the canister and provide a closed, charged first  
13 transfer container;

14 (g) removing the closed, charged first transfer container;

15 (h) placing the charging sleeve of an empty second transfer container over the charging sleeve  
16 film stub of the first transfer container, and attaching the charging sleeve of the empty second empty  
17 transfer container to a second attaching point disposed above the first attaching point of the canister;

18 (i) removing the charging sleeve film stub of the first transfer container from the canister, and  
19 containing the charging sleeve film stub in a bag-out sleeve;

20 (j) closing and removing the bag-out sleeve;

21 (k) repeating steps (c) through (j) for the plurality of attaching points and the plurality of  
22 transfer containers in a particulate contained manner.

3. A method according to claim 2, wherein each of the plurality of attaching points is an  
o-ring groove in a multiple o-ring canister.

1 4. A method according to claim 2, wherein steps (e) and (f) comprise, respectively,  
2 heat sealing a portion of the first charging sleeve so as to form the charging sleeve first section  
3 and the charging sleeve second section, and

4 separating the charging sleeve first section from the charging sleeve second section within the  
5 heat sealed portion.

1 5. A method for the contained transfer of particulates, said method comprising the steps  
2 of:

3 (a) attaching a first of a plurality of charged transfer containers to a process container in a  
4 particulate contained manner;

5 (b) discharging the contents of the charged first transfer container into the process container  
6 so as to provide a discharged first transfer container;

7 (c) sealing the discharged first transfer container;

8 (d) removing the discharged first transfer container in a particulate contained manner; and

9 (e) repeating steps (a) through (d) in a particulate contained manner.

10 6. A method for the contained transfer of particulates, said method comprising the steps  
11 of:

12 (a) attaching a discharging sleeve of a first of a plurality of charged transfer containers to a  
first of a corresponding plurality of attaching points of a canister so as to provide a canister assembly;

(b) installing the assembly on a charge flange of a process container;

(c) releasing a restraint on the charged first transfer container, allowing particulate to flow  
into the process container so as to provide a discharged first transfer container;

(d) closing the first discharging sleeve so as to provide a discharging sleeve first section and  
a discharging sleeve second section;

(e) separating the discharging sleeve first section from the discharging sleeve second section  
so as to provide a discharging sleeve film stub on the top of the canister and provide a closed,  
discharged first transfer container;

- 13 (f) removing the closed, discharged first transfer container;
- 14 (g) placing the discharging sleeve of a charged second transfer container over the discharging
- 15 sleeve film stub of the first transfer container, and attaching the discharging sleeve of the charged
- 16 second transfer container to a second attaching point disposed below the first attaching point of the
- 17 canister;
- 18 (h) removing the discharging sleeve film stub of the first transfer container from the canister,
- 19 and containing the discharging sleeve film stub in a bag-out sleeve;
- 20 (i) closing and removing the bag-out sleeve;
- 21 (j) repeating steps (c) through (i) for the plurality of attaching points and the plurality of
- 22 transfer containers in a particulate contained manner.

7. A method according to claim 6, wherein each of the plurality of attaching points is an o-ring groove in a multiple o-ring canister.

8. A method according to claim 6, wherein steps (d) and (e) comprise, respectively, heat sealing a portion of the first discharging sleeve so as to form the discharging sleeve first section and the discharging sleeve second section, and separating the discharging sleeve first section from the discharging sleeve second section within the heat sealed portion.

1 9. A method for the contained transfer of particulates, said method comprising the steps  
2 of:  
3 (a) attaching a cartridge connect sleeve to a discharge flange adapter of a process container;  
4 (b) mounting a cartridge on the discharge flange adapter;  
5 (c) dispensing a first of a plurality of empty transfer containers from the cartridge and placing  
6 the empty first transfer container in a restraint, each of the plurality of empty transfer containers  
7 comprising a transfer container charging sleeve;  
8 (d) introducing an inert gas to fill the empty first transfer container;  
9 (e) opening a discharge valve on the process container, allowing particulate to flow through  
10 a first transfer container charging sleeve into the first transfer container so as to provide a charged  
11 first transfer container;  
12 (f) closing the first charging sleeve so as to provide a charging sleeve first section and a  
13 charging sleeve second section;  
14 (g) separating the charging sleeve first section from the charging sleeve second section so as  
15 to provide a bottom portion of a second transfer container and provide a closed, charged first transfer  
16 container;  
17 (h) removing the closed, charged first transfer container;  
18 (i) repeating steps (c) through (h) for the plurality of transfer containers in a particulate  
19 contained manner.

Sub A1

Containers

0 1 2 3 4 5

thus according to claim 11, wherein the olefinic  
 ethylene, polypropylene, and mixtures there  
 present in a range of from 0.1 to 0.6%; and  
 filler present in a range of from 0.1 to 1.0%.  
 thus according to claim 11, wherein the olefinic  
 near low density polyethylene, ultra low dens  
 selected from the group consisting of an amin  
 ures thereof; and  
 d inorganic filler.

thus according to claim 11, wherein the olefinic  
 ethylene, polypropylene, and mixtures there  
 present in a range of from 0.1 to 0.6%; and  
 filler present in a range of from 0.1 to 1.0%.  
 thus according to claim 11, wherein the olefinic  
 near low density polyethylene, ultra low dens  
 selected from the group consisting of an amin  
 ures thereof; and  
 d inorganic filler.

ultra low

the antistatic agent is selected from the group consisting of an amine-based additive, an amide-based additive, and mixtures thereof; and

the filler is a silica-based inorganic filler.

1 14. A transfer apparatus according to claim 13, wherein the olefinic base resin is present  
2 in a range of from 98 to 99.5%;  
3 the amide-based antistatic agent is present in a range of from 0.1 to 0.5%;  
4 the amine-based antistatic agent is present in a range of from 0.01 to 0.1%; and  
5 the filler is present in a range of from 0.1 to 1.0%.

1 15. A transfer apparatus according to claim 13, wherein the olefinic base resin is a  
2 metallocene-catalyzed resin;  
3 the antistatic agent comprises N,N-bis(2-hydroxyethyl)dodecanamide and POE(2) C13-C15  
4 alkylamine; and  
5 the filler is a flux calcined diatomaceous earth.

1 16. A transfer apparatus according to claim 15, wherein the metallocene-catalyzed resin  
2 is present in a range of from 99.0 to 99.4%;  
3 the N,N-bis(2-hydroxyethyl)dodecanamide is present in a range of from 0.3 to 0.5%;  
4 the POE(2) C13-C15 alkylamine is present in a range of from 0.05 to 0.1%; and  
5 the diatomaceous earth is present in a range of from 0.1 to 0.4%.

1 17. A heat sealing apparatus capable of operating safely in a hazardous environment, said  
2 apparatus comprising:  
3 a control enclosure cabinet, a user control box, a tower, a flexarm, and a heat seal head.

sealing apparatus

1 18. The heat sealing apparatus according to claim 17, wherein the control enclosure  
2 cabinet comprises power controls, temperature controls, logic circuits, a first purge and pressurization  
3 system for a main control enclosure and a second purge and pressurization system for the heat seal  
4 head.

1 19. The heat sealing apparatus according to claim 17, wherein the heat seal head  
2 comprises a first temperature sensor disposed on a first sealing surface of the head, and a second  
3 temperature sensor disposed on a second sealing surface of the head.

20. The heat sealing apparatus according to claim 17, wherein the control enclosure  
cabinet comprises power controls, temperature controls, logic circuits, and a purge and pressurization  
system for a main control enclosure and for a heated heat seal head enclosure.

21. A rodding apparatus comprising:  
a closure plate disposed in a top charging port of a process container, the closure plate having  
a first side and a second side;  
a post disposed so as to penetrate the closure plate, the post having a first end and a second  
end, the post first end having a means for removably engaging a rodding pole or a first of a plurality  
of rodding pole sections;

*Rodding  
Apparatus*



7 a blade assembly attached to the second side of the closure plate at an interior upper section  
8 of the process container, the blade assembly comprising a blade and a connecting portion for engaging  
9 the post second end;

10 a bellows assembly disposed so as to encapsulate the post second end and to facilitate  
11 movement of the blade assembly within the process container;

12 a securing means for holding the bellows assembly and the blade assembly in a stowed  
13 position, the securing means capable of being manipulated from the exterior of the process container;

14 an illumination source;

15 a video monitoring means;

16 a transparent view port; and

17 a port assembly to facilitate insertion of the illumination source and the video monitoring  
18 means.

22. A method for the contained transfer of particulates, said method comprising the steps  
of:

(a) removably attaching a cannister connect sleeve of a canister to a discharge flange adapter  
4 of a process container, and removably attaching the canister to the discharge flange adapter, so as to  
5 provide a removably attached canister assembly;

6 (b) removably attaching a charging sleeve of a first of a plurality of empty transfer containers  
7 to a first of a corresponding plurality of attaching points of the canister;

8 (c) introducing an inert gas to fill the empty first transfer container;

9 (d) opening a discharge valve on the process container, allowing particulate to flow into the

10 first transfer container so as to provide a charged first transfer container;

11 (e) closing the first charging sleeve so as to provide a charging sleeve first section and a  
12 charging sleeve second section;

13 (f) separating the charging sleeve first section from the charging sleeve second section so as  
14 to provide a charging sleeve film stub on the bottom of the canister and provide a closed, charged first  
15 transfer container;

16 (g) removing the closed, charged first transfer container;

17 (h) placing the charging sleeve of an empty second transfer container over the charging sleeve  
18 film stub of the first transfer container, and attaching the charging sleeve of the empty second empty  
19 transfer container to a second attaching point disposed above the first attaching point of the canister;

20 (i) removing the charging sleeve film stub of the first transfer container from the canister, and  
21 containing the charging sleeve film stub in a bag-out sleeve;

22 (j) closing and removing the bag-out sleeve;

23 (k) repeating steps (c) through (j) for the plurality of attaching points and the plurality of  
24 transfer containers in a particulate contained manner.

1 23. A method for the contained transfer of particulates, said method comprising the steps  
2 of:

3 (a) removably attaching a cannister connect sleeve of a canister to a charge flange adapter of  
4 a process container, and removably attaching the canister to the charge flange adapter, so as to  
5 provide a removably attached canister assembly;

6 (b) removably attaching a discharging sleeve of a first of a plurality of charged transfer  
7 containers to a first of a corresponding plurality of attaching points of the canister;

8 (c) releasing a restraint on the charged first transfer container, allowing particulate to flow  
9 into the process container so as to provide a discharged first transfer container;

10 (d) closing the first discharging sleeve so as to provide a discharging sleeve first section and  
11 a discharging sleeve second section;

12 (e) separating the discharging sleeve first section from the discharging sleeve second section  
13 so as to provide a discharging sleeve film stub on the top of the canister and provide a closed,  
14 discharged first transfer container;

15 (f) removing the closed, discharged first transfer container;

16 (g) placing the discharging sleeve of a charged second transfer container over the discharging  
17 sleeve film stub of the first transfer container, and attaching the discharging sleeve of the charged  
18 second transfer container to a second attaching point disposed below the first attaching point of the  
19 canister;

20 (h) removing the discharging sleeve film stub of the first transfer container from the canister,  
21 and containing the discharging sleeve film stub in a bag-out sleeve;

22 (i) closing and removing the bag-out sleeve;

23 (j) repeating steps (c) through (i) for the plurality of attaching points and the plurality of  
24 transfer containers in a particulate contained manner.

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